ROUTE 66
Bluetooth GPS
User Guide

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ROUTE 66 Bluetooth

GPS Receiver

User Guide

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CONTENT

1. Overview

(Figure 1)

The ROUTE 66 Bluetooth GPS Receiver has a built-in rechargeable Lithium-ion battery. Powered by the SiRF Star III, the ROUTE 66 Bluetooth GPS Receiver is a dual- purpose GPS receiver that communicates with other systems via Bluetooth technology. The SiRF Star III architecture packs the GPS receiver with a comprehensive range of functions, to satisfy the rigorous requirements and professional demands of the location technology field and the needs of personal consumers. The ROUTE 66 Bluetooth GPS Receiver is totally complementary with Bluetooth-enabled PDA and Notebooks etc. in the transmission of satellite signals.

The device can be used in car navigation, security systems, cartography, and other applications such as surveying and agriculture, etc. The basic requirement for its use is to "have a clear view of the sky". It relies on Bluetooth transmission technology, USB, or other compatible interface to communicate with other electronic devices. The built-in rechargeable battery saves satellite information such as the status of the satellite signal, the last location, and the date and time last used.

Apart from being a very power efficient device, the ROUTE 66 Bluetooth GPS Receiver tracks up to 20 satellite signals at a time *①, re-acquires satellite signals in 100 ms and updates position data every second. Trickle-Power power saving capability allows the unit to operate only a fraction of the time. Push-to-Fix permits users to have a quick position fix even when the receiver was only just switched on prior to the positioning.

2. Unpacking

Congratulations on your purchase of the GPS Receiver. We hope it will be useful to you for a long time. Before you begin, make sure that your package includes the following items. If any of these items are missing, please contact your local ROUTE 66 dealer or distributor.

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1. ROUTE 66 Bluetooth GPS Receiver   1 piece
2. Car Charger   1 set
3. GPS drivers (CD)   1 piece
4. Warranty Card   1 set

3. Main Features

In addition to providing a set of user-friendly functions, the ROUTE 66 Bluetooth GPS Receiver WELL suits integration with other systems.

- Comes with SiRF Star III for low power consumption.
- Extremely fast Time To First Fix (TTFF) and re-acquisition supports 20 Channels. *①
- 200,000 effective correlations for rapid acquisition and reacquisition of satellite signals. *①
- Comes with built-in WAAS/ EGNOS demodulator to enable position fixes under low signal level conditions, removing the need for any additional hardware. *①
- Completely compatible with the Bluetooth Serial Port Profile (SPP).
- Low power consumption. Comes with built-in interchangeable Lithium-ion battery for up to 8 hours of use without having to use additional power sources.
- Comes with either Continuous Mode or Power Saving Mode selectable as required.
- Comes with a multi-purpose expansion terminal to connect to non-Bluetooth-enabled devices.
- Backed-up by a built-in rechargeable Lithium-ion battery to store positions and RTC data to enhance TTFF.
- Supports NMEA0183 v2.2 data protocol.
- 3-color LED to show device status.
- Light, slim, and compact.
- Automatically protects the battery from overheating due to overcharging.
- Improved calculation algorithm enables fast position fixes even under conditions of low signal level.
- Flexible design. Easily integrable with car navigation, marine navigation, fleet management, AVL, personal navigation, tracking systems, and other cartographic services.

4. Technical Specifications

4.1. General Specifications

- GPS Chip: low power consumption SiRF Star III Chip.
- Channels: Tracks up to 20 satellites. *①
- Satellite broadband: 1 Hz.
- Receiver signal: L1, C/A Code.

4.2. Acquisition Time (Average) *①

- Reacquisition: 0.1 second.
- Cold start: 42 seconds.
- Warm start: 38 seconds.
- Hot start: 1 second.
- Automatically refreshes position every second.

4.3. Accuracy *①

- Typical positioning: 5 – 25 m CEP (without SA).
- Differential positioning:
  - With synchronous satellite EGNOS/ WAAS:
  - Position error:
    - < 2.2 m, horizontal 95% of the time.
    - < 5 m, vertical 95% of the time.
- Velocity: 0.1 m/ sec.
- Time: 1 µsec sync GPS time.

4.4. Usage *①

- Altitude: < 18,000 meters (60,000 feet).
- Velocity: within 736 meters/ seconds.
- Acceleration: 4G.
- Jerk: 20 meters/ seconds (max).

4.5. Power Supply
- External power source: 5V DC +/- 5%
- Battery:
  - Main battery: Rechargeable Lithium-ion-ion battery.
  - Backup battery: Rechargeable 3V Lithium-ion-ion battery for RTC and satellite data storage.
- Working current: 75-85 mA (under Continuous mode)
- Battery life: Up to 8 hours under full battery and Continuous mode.

4.6. Output Protocol and Interface
- **Output Protocol:**
  I. NMEA 0183 v2.2 protocol

  Baud rate: 38400 bps

  Data bit: 8

  Parity: None

  Stop bit: 1

  II. Output Format:
  - ✓ GPGGA (once per second).
  - ✓ GPGSA (once per 5 seconds).
  - ✓ GPGSV (once per 5 seconds).
  - ✓ GPRMC (once per second).
  - ✓ GPVTG (once per second).
  - ✓ Choice of GLL or SiRF binary format.

  III. Datum: WGS84.

- **Input/ Output Interface:**
  I. Compatible Bluetooth Serial Port Profile (SPP): up to 3 meters (without obstacles).
  II. Output port: Mini USB Type B connector.
  III. Choice of compatible accessories
  - ✓ 1.5 meter USB cable

4.7. Dimensions and Weight

- Dimensions: 70 (W) × 24(L) × 16(H) millimeters
- Weight: < 35 grams

- Operating temperature: from -10℃ to + 60℃ (when not battery charging);

  from 0℃ to 45℃ (when battery charging).

- Storage temperature: from -20℃ to +70℃

- Operating humidity: 5% to 95% (without condensation)

4.8. Other Functions

- Minimum signal strength: -159 dBm. ∗①
- Antenna Type: Built-in patch antenna.
- LED display: Built-in 3 LED display to indicate battery status, Bluetooth data transfer, and GPS status.

5. Getting Started

Step 1. Battery Charging

Before using the GPS receiver for the first time charge the battery until the battery LED indicator goes out. This indicates that the battery is fully charged.
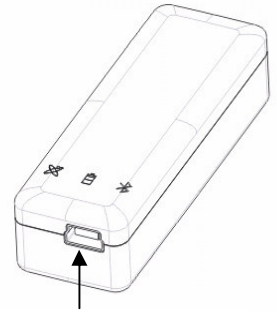
Connect Power Supply   Connect the power cable to the power socket of the Mini USB.

↓

Charge Battery

> Note: This power cable is strictly for battery charging. It cannot be used for data transfer.
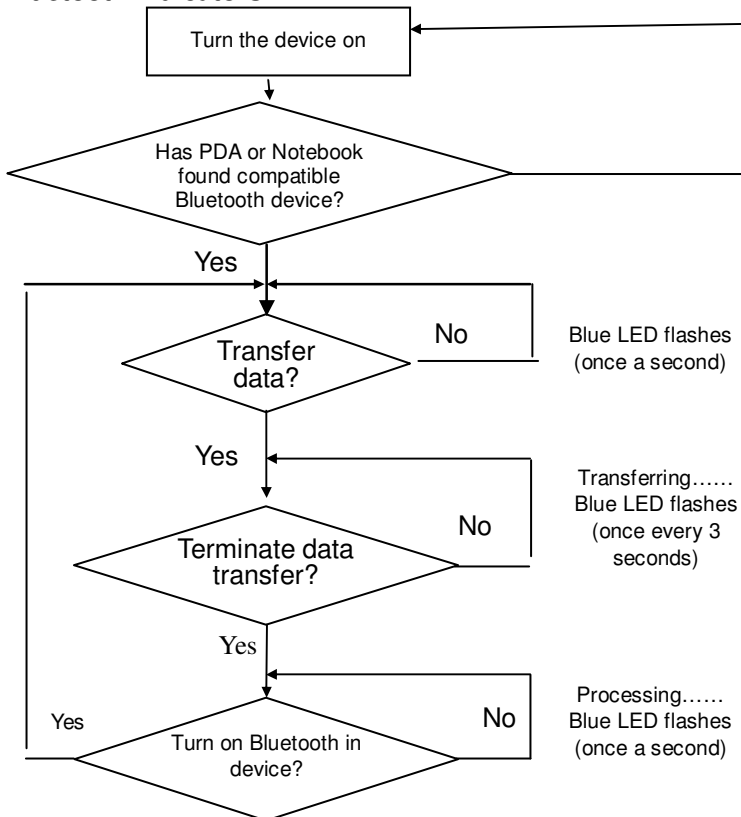
Battery indicators:
Low Battery ---------------------------------- Red LED
Charging -------------------------------------- Green LED
Charging Complete/ Battery Full ---------- LED unlit

Mini USB power socket

Step 2. Power Up

Bluetooth Indicators –

Turn the device on

Has PDA or Notebook found compatible Bluetooth device?

Yes

Transfer data? No Blue LED flashes (once a second)

Yes

Terminate data transfer? No Transferring…… Blue LED flashes (once every 3 seconds)

Yes

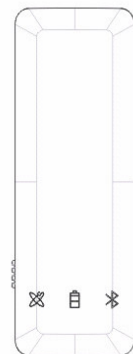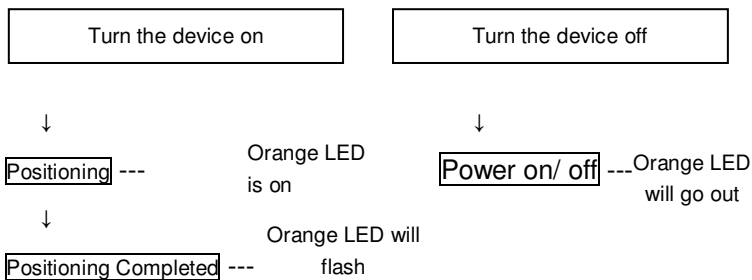Yes Turn on Bluetooth in device? No Processing…… Blue LED flashes (once a second)

Note:
1) To make the connection, some PDAs require turning the Bluetooth feature OFF and then ON.

2) For use on Notebooks with Bluetooth feature.

Fixing A Position -

For strong signal strength, activate the device in an unobstructed space.

Turn the device on   Turn the device off

↓   ↓

Positioning --- Orange LED is on   Power on/ off --- Orange LED will go out

↓

Positioning Completed --- Orange LED will flash

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5.1. Nomenclature

1). The features of the ROUTE 66 Bluetooth GPS Receiver are as shown in Figure 2.

Battery Indicator

Bluetooth Indicator

GPS Indicator

Power Socket and Data Port

(Figure 2)

2). LED indicator status

Symbol	Color	Status		Description
Bluetooth	**Blue**	Flashing	Once a second	Searching for Bluetooth device
			Once a second	Hibernation mode
			Once every 3 seconds	Transferring data
Battery	**Red**	Lit up		Low battery
	Green	Lit up		Charging
	None	Not lit up		Normal
GPS	**Orange**	Lit up		Positioning
		Flashing		Position set

3). Power switch:

a: Power on – Orange light comes on.

b: Power off – Orange light goes out.

4). Power socket and data port as shown in Figure 3

Connector Type: 5-pin mini USB Type B female connector

Position: See Table 1
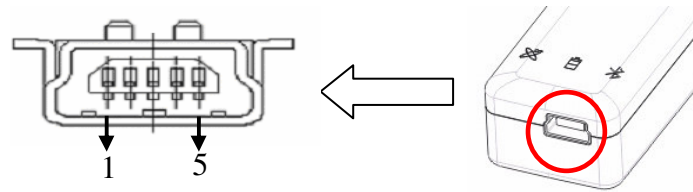
(Figure 3)

Table 1

Position	Name	Signal and Description
1	GND	Power and signal ground.
2	NC	NA
3	TXD	Data transmission. To transmit data to peripheral devices. (CMOS 3.0V Level)
4	RXD	Data receipt. From peripheral devices to the ROUTE 66 Bluetooth GPS Receiver. (CMOS 3.0V Level)
5	VCHARG	Positive terminal of the DC adaptor that powers the internal charging circuit of Lithium-ion battery. Input power supply - 5.0V +/- 5%@1A.

5). The ROUTE 66 Bluetooth GPS Receiver optional accessories and connector description are as shown in Figure 4.

PC/Notebook

USB port

USB cable

Mini USB

(Figure 4)

13
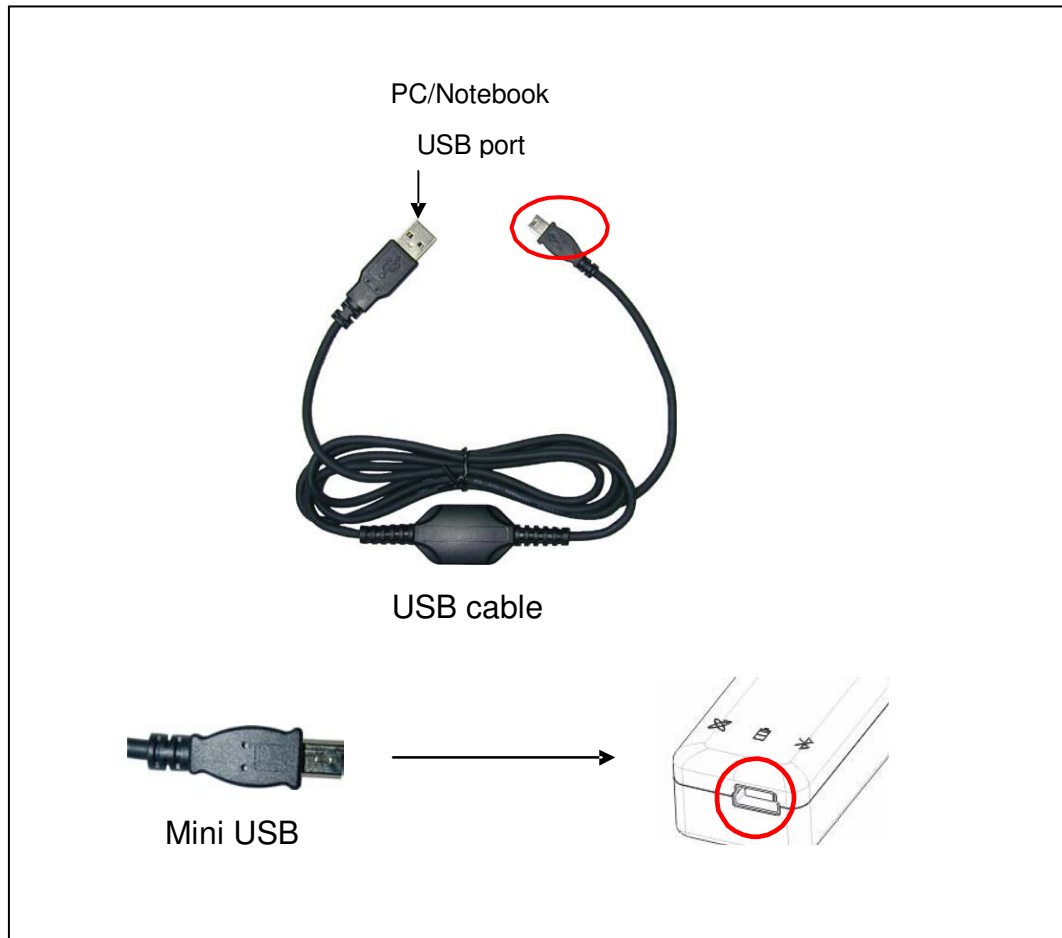
5.2. Bluetooth Installation

Follow the instructions below to link your ROUTE 66 Bluetooth GPS Receiver to a PDA (Personal Digital Assistant).

1. Activate "**Bluetooth Manager**" on your pocket PC. Tap **New**, **Connect**, to access other devices via Bluetooth.
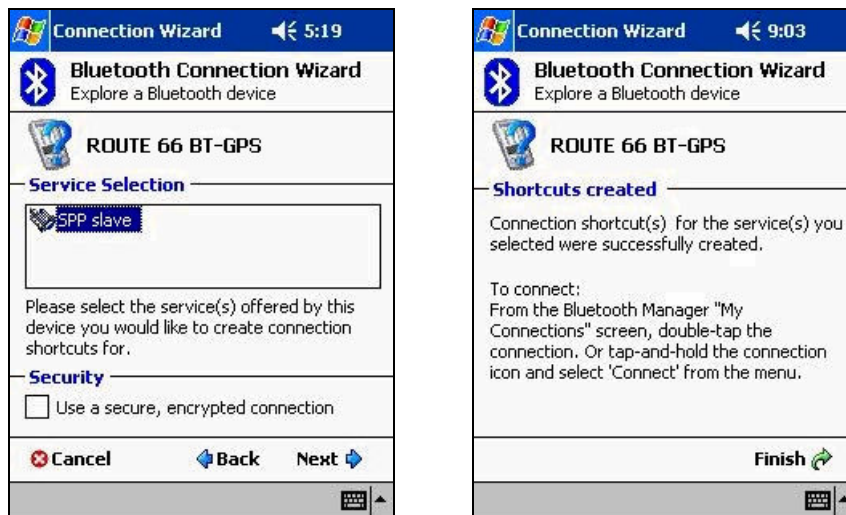
2. Search Bluetooth device **"ROUTE 66 BT-GPS"**. Select **Explore a Bluetooth device**, and tap **Next**.
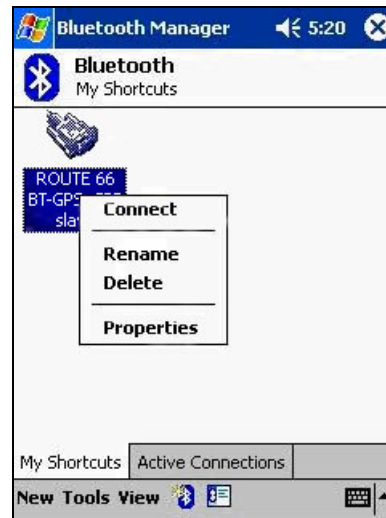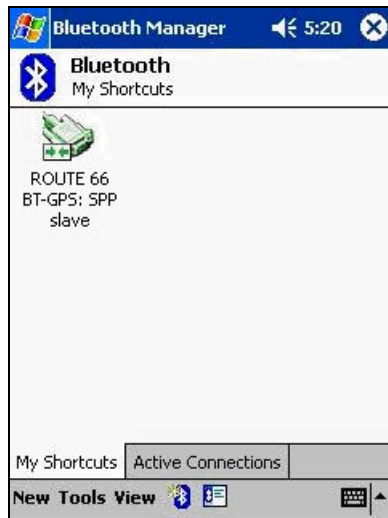
3. Search for the Bluetooth device. Tap **Next**, and then select **ROUTE 66 BT-GPS**.
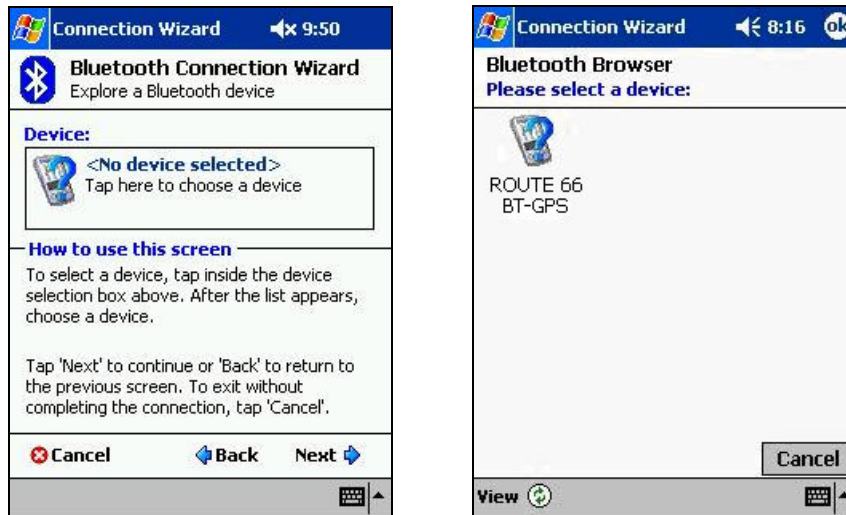
4. To establish Bluetooth link, select **Connect to SPP Slave**, tap **Next** and then **Finish**.

5. Tap **ROUTE 66 BT-GPS**: **SPP slave**, and select **Connect** from the dropdown menu. The installation has been completed.

5.3. Installing the Testing Program

You can install the GPS viewer program from the supplied CD to check current positioning and satellite signal reception.

To install Microsoft Active Sync to your PC, refer to your Pocket PC manual for installation procedures.

1. Connect your Pocket PC cradle to the UART port on your PC. The Microsoft ActiveSync will detect your Pocket PC automatically.
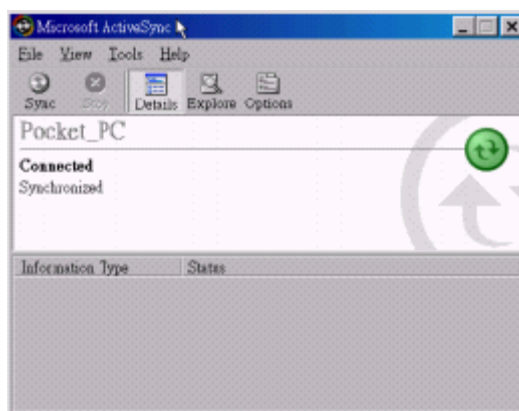
2. Double-click the **GPSViewer.exe** on your PC. The GPSViewer.exe program will install automatically.
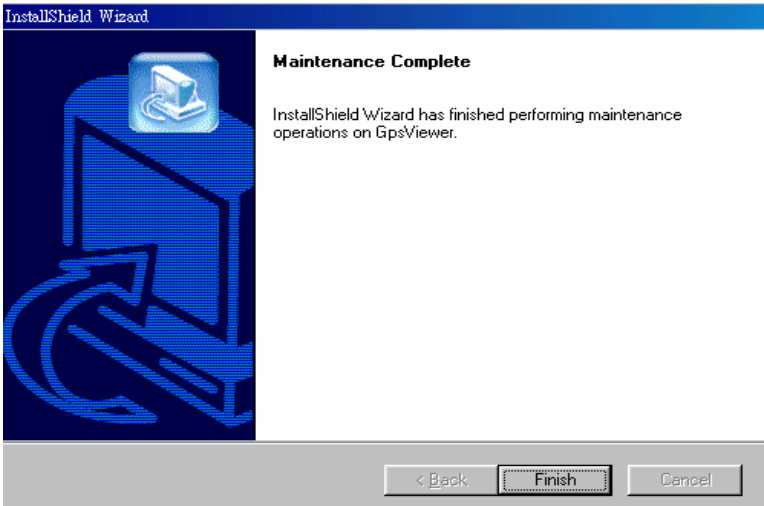
3. Click **Start**, **Programs**, **GPSViewer** on your PDA.
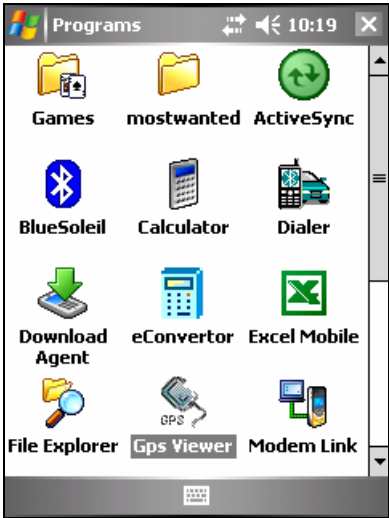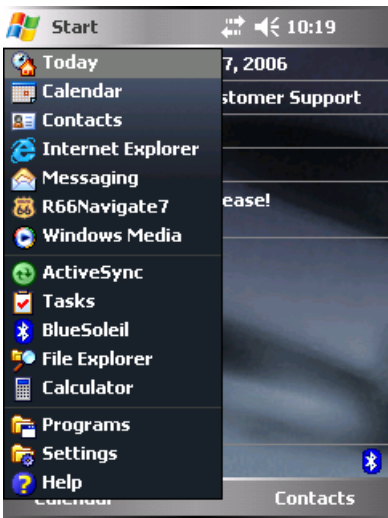
4. The following screen appears after GPS Viewer is opened.
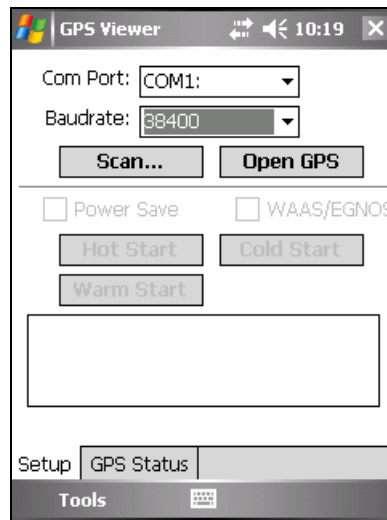
5. Set Baud rate to 38400. Click the **Scan** button to scan for COM Port. Select your COM Port (COM1~COM10), and click **Open GPS**.
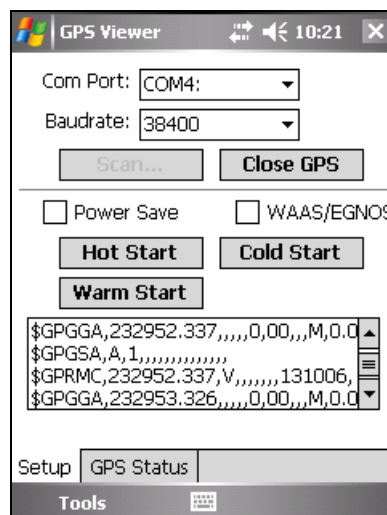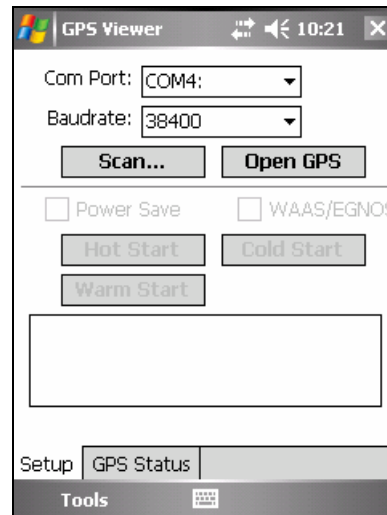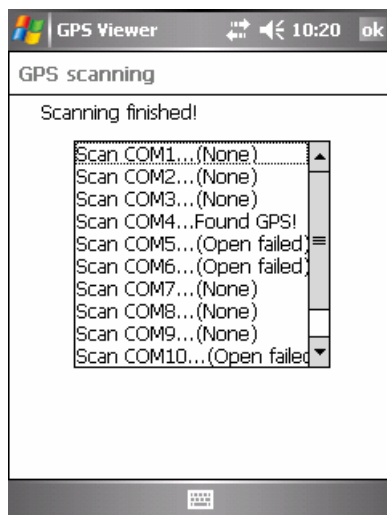
6. Select **GPS Status** to view the satellite diagrams as shown below.
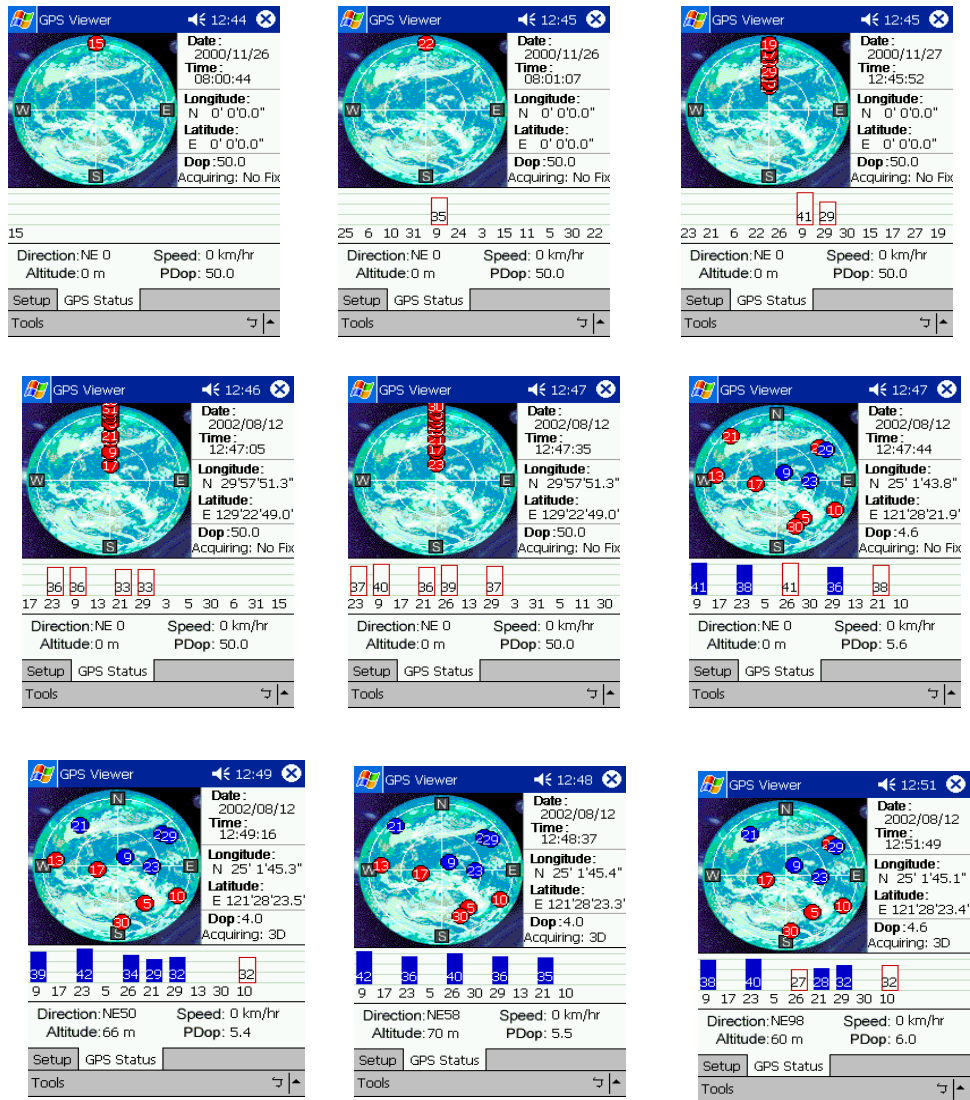
6. Accessories

To cater to customers' different uses and needs, the ROUTE 66 Bluetooth GPS Receiver comes with a range of accessories. When using these accessories, your device will not only have the capability to transfer via Bluetooth, but the ROUTE 66 Bluetooth GPS Receiver will also connect and transmit signals to PDAs, Notebooks and other devices.

* Optional Accessories
- USB Data Cable (for data transmission between the GPS receiver and the computer)

7. USB Cable Driver Installation

The selected USB cable, which complements the ROUTE 66 Bluetooth GPS Receiver requires the driver to be installed.

The following steps detail the installation of the USB cable.

7.1. System Requirements

CPU: IBM, Pentium and higher, or other compatible systems

Memory: At least 16 MB

Operating System: Windows 98/ Me/ 2000/XP

7.2. Installation

1) Copy ROUTE 66 Bluetooth GPS Receiver->English->USB Driver->Win98_2k_XP USB-V2.1.0.exe from the CD to the hard disk.

2) Execute USB-V2.1.0.exe

3) Connect the ROUTE 66 Bluetooth GPS Receiver USB cable to the computer. The system will automatically search for the plug-and-play device and then automatically start the installation. This step completes the entire USB Driver installation.

7.3. Important Notes

1) After the driver installation has been completed, verify the COM port at which the ROUTE 66 Bluetooth GPS Receiver USB was installed.

a. Click **<Start>** menu, select **<Setting>**, then enter **<Control Panel>**

b. In **<Control Panel>** select **<System>**, then **< System Properties>**

c. Select **< Device Manager >**

d. Select **<Ports (COM & LPT)>** and check if the **<USB to Serial Port (COM#)>** is found. If installation is completed, the product can now be used.

"#" represents the Virtual COM Port that was created by the computer. Before using the navigation software, please ensure that the port settings on both the navigation software (usually COM 1) and the computer are identical, so as to correctly receive the data.

2) Users are strongly discouraged from attempting to operate the system while driving.

3) Should this system be used in vehicles, the GPS position needs to be established while the vehicle is stationary.

4) GPS signals are incapable of penetrating solid objects that are non-transparent. The signals will be also be affected by surface cover such as tall buildings, tunnels, elevated expressways, forests etc., or weather conditions such as overcast and rain. If the vehicle is poorly insulated against heat and contains metal parts, GPS signals will not be able to penetrate.

5) All wireless communication devices such as cell phones or traffic police speed detectors etc. can interfere with the reception of GPS signals, resulting in unstable signals.

8. Limited Warranty

Non-U.S. and non-Canadian purchases: If you have made your purchase outside the United States and Canada, this Limited Warranty is granted by and this Limitation of Liability is stipulated for the benefit of ROUTE 66 Geographic Information Systems B.V., Brouwerstraat 36, NL-2984 AR Ridderkerk (The Netherlands).

1) ROUTE 66 Geographic Information Systems B.V. ("ROUTE 66") warrants to you that the Hardware will be free from defects in workmanship and materials under normal use ("Defects") for a period of two (2) years from the date that the Hardware was first purchased by you ("Warranty Period"). During the Warranty Period the Hardware will be repaired or replaced at ROUTE 66's choice ("Limited Warranty") without charge to you for either parts or labour. This Limited Warranty covers the replacement of the Hardware only. If the Hardware is repaired after the Warranty Period has expired, the Warranty Period for the repair will expire six (6) months after the date of repair.

2) The Limited Warranty does not apply to normal wear and tear, does not apply when the Hardware is opened or repaired by someone not authorized by ROUTE 66 and does not cover repair or replacement of any Hardware or part thereof damaged by: misuse, moisture, liquids, proximity or exposure to heat and accident, abuse, non-compliance with the instructions supplied with the Hardware, neglect or misapplication. The Limited Warranty does not cover physical damage to the surface of the Hardware. This Limited Warranty does not cover any software that may accompany or be installed on the Hardware.

3) In order to make a claim of a Defect, you must contact ROUTE 66 by email during the Warranty Period via www.66.com to explain the Defect and to obtain an RMA number (Return Materials Authorization) if necessary. You must return the Hardware during the Warranty Period, along with an explanation of the Defect, to the address provided to you by ROUTE 66. If a defect arises and a valid claim under this Limited Warranty is received by ROUTE 66 after the first one hundred and eighty (180) days of the Warranty Period, ROUTE 66 is entitled to charge you for any reasonable shipping and handling costs made in connection with the repair or replacement of the Hardware. You must comply with any other return procedures stipulated by ROUTE 66, if any.

4) Some countries may not allow the exclusion or limitation of damages. If any part of this Limited Warranty is held to be invalid or unenforceable, the remainder of the Limited Warranty shall nonetheless remain in full force and effect.

5) This Limited Warranty is the only express warranty made to you and is provided in lieu of any other express warranties or similar obligations (if any) created by any advertising, documentation, packaging, or other communications.

6) Except for the Limited Warranty and to the maximum extent permitted by applicable law, ROUTE 66 and its suppliers provide the Hardware "AS IS AND WITH ALL FAULTS", and hereby disclaim all other warranties and conditions, whether express, implied or statutory, including, but not limited to, any (if any) implied warranties, duties or conditions of satisfactory quality, of fitness for a particular purpose, of reliability or availability, of accuracy or completeness of responses, of results, of workmanlike effort, of lack of viruses, and of reasonable care and skill, all with regard to the Hardware, and the provision of or failure to provide support or other services, information, software, and related content through the Hardware or otherwise arising out of the use of the Hardware. Also, there is no warranty or condition of quiet enjoyment, quiet possession, or non-infringement with regard to the Hardware. This exclusion does not apply to (i) any implied condition as to title and (ii) any implied warranty as to conformity with description.

7) This Limited Warranty does not affect any legal rights under applicable national legislation governing the sale of consumer goods.

8) This Limited Warranty cannot be transferred to any other person.

9) Neither ROUTE 66 nor its suppliers shall be liable to you or to any third party for any damages either direct, indirect, incidental, consequential or otherwise (including in each case, but not limited to, damages for the inability to use the equipment or access data, loss of data, loss of business, loss of profits, business interruption or the like) arising out of the use of or inability to use the Hardware even if ROUTE 66 has been advised of the possibility of such damages.

10) Notwithstanding any damages that you might incur for any reason whatsoever (including, without limitation, all damages referenced herein and all direct or general damages in contract or anything else), the entire liability of ROUTE 66 and any of its suppliers shall be limited to the amount actually paid by you for the Hardware.

11) ROUTE 66 shall not be liable for (i) any fraud on the part of its employees and/or agents; or (ii) any fraudulent misrepresentation on the part of its employees and/or agents.

12) Notwithstanding the above, neither party's liability for death or personal injury resulting from its own negligence shall be limited.

- **As the ROUTE 66 Bluetooth GPS Receiver has a built-in Lithium-ion battery, please avoid leaving the device in high temperatures under direct sunlight for an extended period of time.**
- **The built-in Lithium-ion battery can only be replaced by ROUTE 66. Customers will bear full responsibility for the use of other unapproved products and the warranty does not cover such acts.**

9. Troubleshooting

Problem	Reasons	Method
No signal output	Either no GPS signals or weak signals. Signals blocked by tall buildings, vehicle roof, or anti-heat film on the vehicle windows.	Place the ROUTE 66 Bluetooth GPS Receiver outdoors.
Unable to find GPS module	Improper installation or battery is flat.	Check the ROUTE 66 Bluetooth GPS Receiver installation or ensure that the battery is not flat. The battery LED should not be lit. (orange LED should light)
Unable to connect to Bluetooth	Improper installation	Refer to Section 5.2 to re-install.
Unable to open COM port	The ROUTE 66 Bluetooth GPS Receiver is not properly installed, or COM port is currently being used.	Ensure proper installation of the ROUTE 66 Bluetooth GPS Receiver, or terminate the use of the COM port, or check if other installations require password.
No signal	The PDA may go into power saving mode after a few minutes of inactivity. This will in turn close the COM port.	Disable the power saving mode, re-execute the PDA to reopen the COM port.
	Weak or no GPS signal.	Use the ROUTE 66 Bluetooth GPS Receiver outdoors.

*① : Cit. SiRF's onginal chipset spec.

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/ TV technician for help.

CAUTION:
Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

RF exposure warning ·

The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment.

The equipment must not be co-located or operating in conjunction with any other antenna or transmitter.

English: This equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Disposal of old electrical appliances

The European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE), requires that old household electrical appliances must not be disposed of in the normal unsorted municipal waste stream. Old appliances must be collected separately in order to optimise the recovery and recycling of the materials they contain and reduce the impact on human health and the environment. The crossed out "wheeled bin" symbol on the product reminds you of your obligation, that when you dispose of the appliance it must be separately collected. Consumers should contact their local authority or retailer for information concerning the correct disposal of their old appliance.